ONE AND A HALF YEARS OF KENYAN ORTHOPTERA: III. ACRIDIDAE: OEDIPODINAE

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BAND-WING GRASSHOPPERS (Oedipodinae) form a conspicuous part of the grasshopper fauna throughout Kenya and may be the dominant group in arid environments. The subfamily Oedipodinae, which was reinstated by Dirsh (1975), forms a convenient grouping of grasshoppers which mostly have a serrated intercalary vein used for stridulation, banded or coloured wings, a vertical face and are ground-dwelling in habit. However, it may be more correct to combine the Oedipodinae with the Acridinae (Dirsh, 1965), there being numerous intermediate forms. Whilst the important genera *Aiolopus, Gastrimargus* and *Oedaleus* have undergone revision (Hollis, 1968; Ritchie, 1981; Ritchie, 1982), others, notably *Sphingonotus* and *Acrotylus,* are in a confused state, preventing confident identification.

Calephorus compressicornis (Latreille). Usengi, Lake Victoria, sandy lake shore, xi.1992.

Paracinema tricolor (Thunberg). Nairobi, Kirichwa Kubwa River, 1.i.1992; Nairobi, wasteland beside Mbagathi Way, 8.viii.1992; Kericho, xi.1992; Timboroa, 10.x.1991; Naivasha, Fisherman's Camp, 1.vi.1991 & 22.xii.1991; Mwea Rice Scheme, 4.vii.1992; Tigoni Falls, 29.xii.1991, Tumu Tumu, near Karatina, 26-27.ix.1992; Ololua Forest, Karen, 15.iii.1992.

Jasomenia dimidiata (Bolivar). Mwea Rice Scheme, 4.vii.1992; Sokoke Forest, Kenya Glass Track, 1.xii.1991;Mnarani, Kilifi, 21-24.iii.1992; Kibarani, Kilifi, 22.iii.1992; Jaribuni, Kilifi, 22.iii.1992.

Aiolopus thalassinus (Fabricius). Magadi, 1.ii.1992; Nairobi, Hurlingham, 3.xi.1991; Mnarani, Kilifi, 21-24.iii.1992; Mwea Rice scheme, 4.vii.1992; Naivasha, Kongoni, 22.xii.1991; Nairobi, Mbagathi Road, 8.iii.1992; Nairobi, Kirichwa Kubwa, 1.i.1992; Kibarani, Kilifi, 22.iii.1992; Ol Doinyo Sabuk, 25.i.1992; Naivasha, Fisherman's Camp, 1.vi.1991; Lake Victoria, Usengi, xi, 1992; Lessos, 7.ii.1992; Naivasha, Crescent Island, 10.xi.1991 & 1.vi.1992.

A. simulatrix (Walker). Loyangalani, Lake Turkana, 3.xi.1992.

A. longicornis Sjöstedt. Samburu National Reserve, vii. 1985; Ol Doinyo Sabuk, 25.i.1992.

A. meruensis Sjöstedt. Athi Plains, Kiserian-Isinya Road, 5.iv.1992.

Sphingonotus rubescens (Walker). Lake Turkana, Loyangalani and El Molo Bay, 3.xi.1992.

S. canariensis (Saussure). Baragoi, El Barta Plains, 1.xi.1992; Lake Magadi, 1.ii.1992 & xii.1992; Olorgasailie, 26.iv.1992; Lake Natron (Tanzania), 6.ix.1992.

The Lake Natron record adds this species to the list for Tanzania (Johnsen & Forchhammer, 1975).

Sphingonotus turkanae Uvarov. Magadi Road, near Kisames, 29.iii.1992; Olorgasailie, 26.iv.1992 & 6.ix.1992; Magadi, 1.ii.1992.

Heteropternis couloniana (Saussure). Kakamega Forest, 11.x.1991 & 7-9.ii.1992; Lavington, Nairobi, v.-vi.1991; Tigoni Falls, 29.xii.1991; Kirichwa Kubwa, Nairobi, 1.i.1992; Naivasha, Kinangop Road, xii.1992; Eburru, 6.xii.1992; Ngong Hills, 19.i.1992.

H. thoracica (Walker). Sokoke Forest, Jilore Track, 16.v.1992; Jimba near Kaloleni, 23.iii.1992.

Pycnodictya galinieri (Reiche and Fairmaire). (Plate X). Athi Plains, Kiserian-Isinya Road, 5.iv.1992; Olorgasailie, 26.iv.1992 & 6.ix.1992; var. *citrina* Magadi Road, 1.ii.1992.

P. kelleri (Schulthess). (Plate C, Fig. 11). Olorgasailie, 26.iv.1992 & 6.ix.1992; Magadi, near the golf course, xii.1992; Magadi, Emarti Oo Lainyamok Plain, 11.x.1992.

Gastrimargus mirabilis Uvarov. Kakamega Forest, 7-9.ii.1992.

G. africanus (Saussure). Kakamega Forest, 7-9.ii.1992.

G. verticalis Saussure. Hurlingham, Nairobi, in garden, v.1992; Eburru, xii.1992; Split Crater, Lake Elmenteita, 13.xii.1992.

Humbe tenuicornis (Schaum). (Plate C, Fig. 9). Malindi, vii.1985; Kilifi, xi.-xii.1991; Kilifi, Mnarani, 21-24.iii.1992; Hell's Gate, xii.1992; Sokoke Forest, 16.v.1992; Thika, Chania Falls, 5.vii.1992; Magadi Road near Kisames on 25.v.1991; Usengi, Lake Victoria, xi.1992; Lake Nakuru, vi.1992.

? *Humbe* sp. (Plate C, Fig. 8). A single female collected from among herbage beside the Magadi Road near Kisames on 25.v.1991 does not appear to belong to any species represented in the National Museum of Kenya, Nairobi or in BM(NH). Because only a single female was collected and a male is not available for comparison with known species, it is difficult to place the insect in any particualr genus. Its features are most compatible with *Humbe* Bolivar but it is clearly not *H. tenuicornis*. For these reasons it is considered inappropriate to give the insect a specific name at this stage but the specimen is illustrated and a brief description is given in the style of Dirsh (1965).

Of medium size. Integument slightly rugose. Antenna filiform, slightly longer than head and pronotum together. Head globular. Pronotum highly tectiform, almost crest-shaped; no sulci. Elytra and wings fully developed; intercalary vein of medial area of elytron strong. Femur moderately slender. Measurements: total length (front of head to tip of folded elytron), 32.9mm; length of elytron, 24.2mm; length of hind femur, 15.3mm; width of hind femur (at broadest part), 3.1mm.

Oedaleus senegalensis (Krauss). Magadi Road, Olekemonge Gorge, 25.v.1991 & 1.ii.1992; Lake Magadi, 1.ii.1992.

O. instillatus Burr. Magadi Road, 1.ii.1992.

Morphacris fasciata (Thunberg). Nairobi, Lavington, 25.v.1991. Masai Mara, 17.vii.1985; Nairobi, Hurlingham, 3.xi.1991; Mnarani, Kilifi, 18.iv.1992 & 15-17.v.1992; Nairobi, Mbagathi Road, 8.iii.1992; Nairobi, Kirichwa Kubwa, 1.i.1992; Shompole, 6.ix.1992; Usengi, Lake Victoria, xi.1992; Athi Plains, Kiserian-Isinya Road, 5.iv.1992; Ololua Forest, Karen, 15.iii.1992; Kakamega Forest, 11.x.1991 & 7-9.ii.1992.

Trilophidia conturbata (Walker). Buffalo Springs National Reserve, vii.1985; Tumu Tumu, near Karatina, 26-27.ix.1992; Nairobi, Hurlingham, 3.xi.1991; Crescent Island, Naivasha, 10.xi.1991; Nairobi, Lavington, v-vi.1991; Aberdares Country Club, 14.xi.1992; Ol Doinyo Sapuk, 25.i.1992; Kilifi, Mnarani, 21-24.iii.1992; Kakamega Forest, 7-9.ii.1992; Magadi, 25.v.1991.

Conipoda pallida (Walker). (syn. *Pternoscirtus gracilis* (Miller)). Masai Mara, on sandy river bank, 17.vii.1985.

Acrotylus Fieber. This important African genus is in a confused state. As the genus has not been revised, plausible nomenclature is used below which must be considered provisional. A key to *Acrotylus* in Kenya is given which summarises how the specimens were identified. My material consists of mature adults, killed with potassium cyanide and promptly set and dried to preserve natural colours. *Acrotylus ndoloi* Kevan, which was not found by the author, is omitted from the key. The few specimens at BM(NH) of this little-known insect show it to be distinct from other Kenyan species. It is a robust species superfically like *A. elgonensis* but among other differences is larger and may occur as a pink-winged variant.

Key to *Acrotylus* in Kenya

1. Wings red with obvious dark bands .....(2.)
– Wings coloured or infumate without obvious dark bands .....(4.)
2. Middle antennal segments short, length approximately 1.5 times width; antennae short (c. 6mm; slightly longer in females than in males); body relatively thick-set; yellowish patches on elytra and hind femora (Kenyan specimens); wings red with discrete dark band which does not reach hind margin of wing ..*A. insubricus*
– Middle antennal segments long, length more than 1.5 times that of width; antennae long (>7mm); body relatively slender; no obvious yellow patches on elytra and hind femora; wings red; dark band reaches hind margin of wing.....(3.)
3. Middle antennal segments shorter, length about 1.8 times that of width; antennae shorter (c. 8mm); femora thicker; wings cherry-red .....*A. patruelis*
– Middle antennal segments longer, length about 2.5 times that of width; antennae longer (c. 9mm); femora more slender; wings crimson.....*A. somaliensis*
4. Wings variably infumate and without colour; body thick-set; relatively short body length (male c. 15.5mm, female c. 20mm: vertex to folded wingtips).....*A. elgonensis*

– Wings coloured, with variable amounts of infumation and dark markings; body relatively slender; relatively long body length (male c. 21mm, female c. 25mm) ..... (5.)

5. Wings pale orange, yellow or pale pink-orange ..... *A. longipes*
– Wings pale blue or bright flesh-pink ..... *A. blondeli* (*sensu lato*)

Acrotylus insubricus (Scopoli) (Plate C. Fig. 2). Magadi Road, near Kisames, 29.iii.1992, one male; Kisima, near Maralal, 5.xi.1992, one female. These were the only examples found. Both localities were shared with *A. blondeli* and were more arid than sites favoured by *A. patruelis*. Unlike specimens in my series from Morocco, Tunisia, Greece and Canary Islands, the two Kenyan specimens have conspicuous yellowish markings as reported for this species in Egypt (Hussein, 1942). Whilst reviewing the distribution of this species in Africa, Johnsen (1991) stated that there was an absence of records from the arid corridor of East Africa. Thus, these Kenyan records provide a link between the two main known areas of distribution of this species in the arid parts of northern and southern Africa.

A. patruelis (Herrich-Schaeffer, 1938). (Plate C, Fig. 3). Kakamega Forest, 11.x.1991; Kakamega Forest, old quarry, 7-9.ii.1992; Lake Victoria, Usengi, xi.1992; Nairobi, Mbagathi Road, 8.iii.1992; Naivasha, Crater Lake, 22.xii.1991; Eburru, 6.xii.1992; Hell's Gate, xii.1992. Common on bare ground at relatively moist localities in the highlands and western Kenya.

A. somaliensis Schmidt. (Plate C, Fig. 1).Ol Doinyo Sabuk, eroded track on north brow of summit, 8,000ft, 25.i.1992, one male. *A. somaliensis* was described from Somalia (Johnsen & Schmidt, 1982). My single Kenyan specimen matches the description and figures of *A. somaliensis* and clearly stands out from my series of 20 specimens of *A. patruelis* from Kenya and Spain. In particular the antennal segments and antennae are longer and the wings are crimson rather than cherry-red in colour. It was the only specimen of *Acrotylus* seen at the site and was found with single males of *Aiolopus longicornis* and *A. thalassinus*.

A. longipes (Charpentier). (Plate C, Fig. 4). Magadi, 25.v.1991 & 1.ii.1992; Amboseli, 5.xii.1991; Magadi Road, near Kisames, 29.iii.1992; Lake Natron (Tanzania), 6.ix.1992; Olorgasailie, 26.iv.1992; Shompole, 6.ix.1992; Buffalo Springs National Reserve, vii.1985; El Molo Bay, Lake Turkana, 3.xi.1992; Loyangalani, Lake Turkana, 3.xi.1992; Barsaloi, Samburu, 4.xi.1992; El Barta Plains, Baragoi, 1.xi.1992. The Lake Natron record adds this species to the list for Tanzania (Johnsen & Forchhammer, 1975). Common in arid areas of northern and southern Kenya. Three colour forms were found: with yellow, pale orange or pink-orange wings. All examples in my series from northern Kenya have pale pink-orange wings (n=15). In southern Kenya and at Lake Natron, yellow-winged insects predominate (85% (28/33)) over those with pale orange wings (12% (4/33)) or pale pink-orange wings (3%; one specimen from Amboseli).

A. blondeli Saussure. (Plate C, Fig. 6). A number of similar *Acrotylus* spp. have been described which occur either as blue-winged or pink-winged variants. At least three names have been used to record such material from East Africa: *A. variegatus* Brancsik, *A. trifasciatus* Kevan, *A. incarnatus* (Krauss). It is difficult to appreciate constant differences between Kevan's series of *A. trifasciatus* and the series of *A. variegatus* at BM(NH). Dirsh (1970) synonymised *A. variegatus* with the West African species *A. blondeli*. Furthermore, the name *A. incarnatus* has been applied to *Acrotylus* with flesh-pink or blue wings (Uvarov & Popov, 1957; Johnsen & Schmidt, 1982). For convenience, all material is lumped as *A. blondeli*. Blue-winged specimens (n=14): Magadi Road, near Kisames, 29.iii.1992; Kisima, near Maralal, 5.xi.1992; Sokoke Forest, Kenya Glass Track, 1.xii.1991; Kilifi, xi-xii.1991; Manda Island, 24.v.1992. Pink-winged specimens: a series of five males and seven females with bright, flesh-pink wings was collected from a dry river bed near Kisames off the Magadi Road. There appears to be no constant anatomical or pattern difference between these and blue-winged specimens, two of which were collected with them.

A. elgonensis Sjöstedt. (Plate C, Fig. 7). Crescent Island, Naivasha, 10.xi.1991 & 1.vi.1992; Eburru, 6.xii.1992; Crater Lake, Naivasha, 22.xii.1991; Lerochi Plateau, Maralal, 31.x.1992; Awasi, xi.1992. Timboroa, 10.x.1991; Lessos, 7.ii.1992. The Naivasha localities were from naturally stony terrain. All other sites were on roadside gravel. Locally common. Unlike other Kenyan *Acrotylus* spp., *A. elgonensis* occasionally has green body markings.

Localities. 3. Rift Valley

The Rift Valley is a major geographical feature which crosses the whole country, Some of the most arid environments in Kenya occur on the low sections of the valley floor around Lake Magadi (1,900ft) in the extreme south and around Lake Turkana (Rudolf) (1,300ft) in the extreme north. In contrast, there are permanent lawns around Lake Naivashi (6,000ft) and the higher sections of the valley floor around Gilgil and Nakuru (6,000ft) support woodland and grassland. For the Nairobi resident, the Magadi Road is one of the quickest routes from the city into primordial Africa. One escapes Nairobi along the congested Langata Road, passing the Nairobi National Park before turning southwards onto the Magadi Road. The road crosses the shoulder of the Ngong Hills, reaching 7,000ft before descending step-wise over a series of escarpments that form the wall of the Rift Valley. The vistas along this route are exceedingly beautiful when yellow and white acacias are in flower. The road crosses a seasonal watercourse near Kisames which is a good site for *Acrotylus* spp. and *Sphingonotus turkanae*. Continuing southwards, roadside scrub harbours *Oedaleus instillatus, Pycnodictya galinieri* and *Truxalis* spp. Near the Olorgasailie Prehistoric Site is good terrain for Orthoptera with *Pycnodictya galinieri, P. kelleri, Sphingonotus* spp., *Acrotylus longipes, Chrotogonus homolodemus* and *Ochrilidia nyuki*. Before reaching Lake Magadi, the road reaches the Olekemonge Gorge which contains a small river. Depending on the season, the surrounding country may be a

dust-bowl or a riot of vegetation with grasshoppers like *Oedaleus senegalensis* and *Taramassus* sp. Lake Magadi is a soda lake and one of the hottest places in Kenya. Dust-devils are often seen, sucking up dead vegetation in their path. Sometimes several of these thin dark spinning columns are visible at a time and one may meander chaotically across the path of one's vehicle. On reaching the lake one has a choice of continuing into Magadi town and southwards or across the lake on soda-encrusted causeways towards the Nguraman escarpment. The Magadi soda company brings a small area of authentic industrial landscape to the heart of wilderness and supports the surreal Magadi golf course, a rounded expanse of blue-grey volcanic grit without a blade of grass. *Anacridium melanorhodon, Pycnodictya kelleri, Sphingonotus canariensis* and *Truxalis burti* occur between the course and the lake. South of Magadi, near the Masai settlement of Shompole, the Ewaso Ngiro river feeds a huge swamp where *Morphacris fasciata* occurs, a species apparently absent from the arid Magadi Road. Following the river southwards by Land-rover, it is possible to drive over volcanic boulders to Lake Natron in Tanzania, although there is no road or border post. The shimmering lake is surrounded by stones and thorn scrub shared by *Acrotylus longipes, Sphingonotus canariensis* and the Masai who show no sign of adaption to twentieth century life in this most inhospitable terrain.

In contrast to Magadi, Lake Naivasha is freshwater and in a higher, cooler section of the valley. *Aiolopus thalassinus, Paracinema tricolor* and *Paratettix* sp. are reliably present on the lawns around the lake, such as at Fisherman's Camp, whilst the dry stony terrain on Crescent Island supports *Acrotylus elgonensis*. At Crater Lake a few miles west of Lake Naivasha there is open woodland with a diverse grasshopper fauna including *Eyprepocnemis* sp., *Cannula gracilis, Acrotylus elgonensis, A. patruelis, Pnorisa* sp. and *Parasphena naivashensis*. Split Crater near Lake Elmenteita contains rich grassland with impressive grasshoppers such as the huge pamphagid *Lobosceliana gilgilensis, Ornithacris pictula magnifica, Eyprepocnemis* sp., *Acorypha* sp., *Gastrimargus verticalis, Cannula gracilis* and the phaneropterine *Tylopsis irregularis Karsch*.

Much of the valley floor in northern Kenya is filled by Lake Turkana whose shores are surrounded by semi-desert. Being a three-day journey overland from Nairobi, I visited Turkana only once and saw relatively few insects. *Aiolopus simulatrix* occurs on sand under palm trees at Loyangalani whilst *Sphingonotus rubescens* inhabits rocky terrain. At El Molo Bay, where there is virtually no vegetation, the extraordinary mantid *Eremiaphila cordofana* Werner may be seen, running like a fat spider over volcanic rubble.

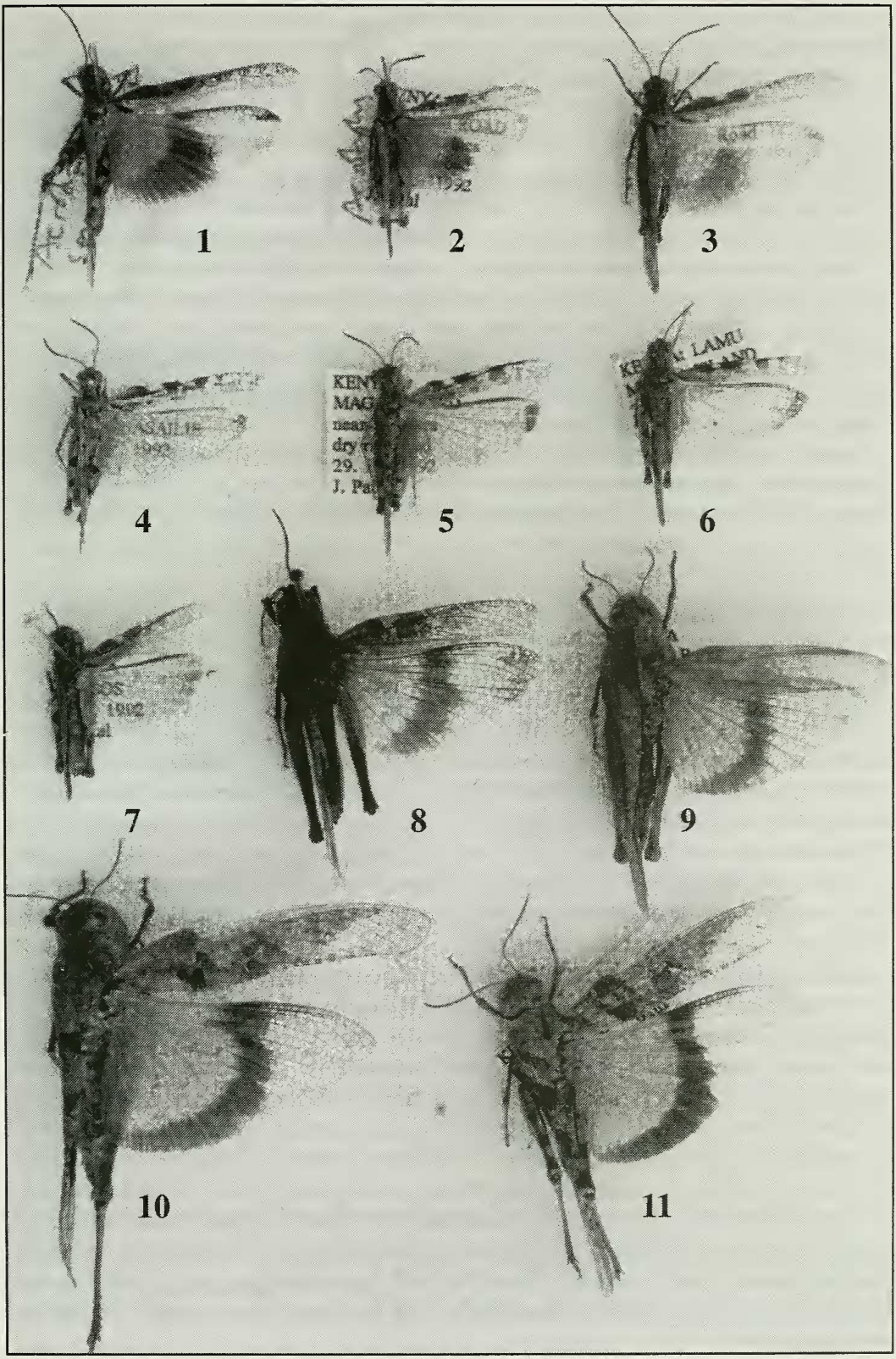
Plate C: Kenyan Oedipodinae

1 *Acrotylus somaliensis* ♂, **2** *A. insubricus* ♂, **3** *A. patruelis* ♂ ★

4 *Acrotylus longipes* ♂, **5** *A. blondeli* (s.l.) ♂ (flesh-pink wings), **6** *A. blondeli* (s.l.) ♂ (blue wings),

7 *Acrotylus elgonensis* ♀, **8** ?*Humbe* sp. ♀, **9** *Humbe tenuicornis* ♀.

10 *Pycnodictya galinieri* (var. *citrina*) ♀, **11** *Pycnodictya kelleri* ♂.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Hazards of butterfly collecting – Kwesi's parrot – Cape Coast, Ghana, January 1995

When coming back to base from two tiring weeks in the forests of Ghana, one of my main luxuries is staying at the Hans Cottage Hotel in Cape Coast. It is a small hotel, situated on an artificial lake in rural surroundings, ten kilometres from town. The dining areas are platforms built on stilts in the lake.

I first saw the hotel in its construction phase more than two years ago. It looked like a commercial suicide attempt. Just the thought of the mosquitoes breeding in the lake was enough to write the project off.

I had not reckoned with the owner, Kwesi Hanson – owner of two other hotels in Accra and Cape Coast, prize-winning fish farmer, the only known grower of oyster mushrooms in between the two tropics, lover of nature, and with the faith to put his own money into the development of Ghana (which is one of the friendliest and safest places in Africa, but with a sad history of economic mismanagement).

The lake was stocked with tilapia fish, which ate the mosquito larvae, and which in turn attracted the spontaneous arrival of several crocodiles (where-ever from!?!?), which now provide a major tourist attraction, which has made Kwesi's venture a very going concern. The crocodiles could be summoned by a low whistle, a piece of bread thrown into the lake would attract the tilapia, and a live display of crocodiles feeding was on hand – incidentally, they feed by swimming very slowly till their snout is next to the tilapia, then catch them with a sideways movement (I bet you did not know that!).